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FINAL TECHNICAL REPORT
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Robert L. Smith and P. Michael Kosro

An Investigation of the Poleward Undercurrent Over the Continental Margin of North America

The focus of the research was on the ocean along its eastern boundaries. Recent studies supported by ONR have provided the data capable of demonstrating the spatial and temporal extent of the poleward flow and describing its kinematic and dynamic characteristics (Smith et al. 1996). This grant analyzed Acoustic Doppler Current Profiling (ADCP) data collected during the triennial NMFS acoustic-trawl survey for Pacific Whiting (Hake) which was conducted from 1 July to 1 September 1995 over the continental shelf and slope from Point Conception, California (34° 30'N) to Dixon Entrance, Alaska (54° 30'N). Sections across the continental margin were made at 20 km spacing; two frequencies (38, 120 kHz) were used to collect acoustic data to describe the biological scattering and a 150 kHz ADCP was used to describe ocean currents (Wilson et al., 1997). The ADCP data provided high quality current measurements between 20 and 350 m (Pierce et al., 1996). A subsurface poleward undercurrent was observed in 86 of the 110 sections between 34° and 51° N with speed > 5 cm/s, width > 10 km, and thickness > 100 m at 200 m. The mean poleward velocity in the sections was about 20 cm/s. The data suggest continuity of the undercurrent over the entire latitudinal range, from 34° N to 51° N with a slight poleward weakening and deepening.

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